



U.S. DEPARTMENT OF  
**ENERGY**

# EFRC for Solid-State Lighting (SSL) Science

Jerry A. Simmons & Mike Coltrin  
(Sandia National Labs)

**Goal:** Improve the energy-efficiency in the way we light our homes and offices, which currently accounts for 20% of the nation's electrical energy use. Solid-State Lighting (SSL) has the potential to cut that energy consumption in half – or even more.



**Research plan:** Investigate conversion of electricity to light using radically new designs, such as luminescent nanowires, quantum dots, and hybrid architectures; study energy conversion processes in structures whose sizes are even smaller than the wavelength of light; understand and eliminate defects in SSL semiconductor materials that presently limit the energy efficiency.